TE-W Series Temperature Controller
User Manual

Features:
- TC/RTD universal input,
- With display and control function,
- Advanced Two freedom degree PID arithmetic,
- With heating control Auto-tuning function,
- Relay output or SSR output can be choosed,
- One alarm, multi-alarm modes

For your safe, please read the below content carefully before you use the temperature controller!

▣ Safe Caution

※ Please read the manual carefully before you use the temperature controller.
※ Please comply with the below important points. ⚠ Warning An accident may happen if the operation does not comply with the instruction. ⚠ Notice An operation that does not comply with the instruction may lead to product damage.
※ The instruction of the symbol in the manual is as below. ⚠ An accident danger may happen in a special condition.

⚠ Warning

1. A safty protection equipment must be installed or please contact with us for the relative information if the product is used under the circumstance such as nuclear control, medical treatment equipment, automobile, train, airplane, aviation and equipment etc. Otherwise, it may cause serious loss, fire or person injury.
2. A panel must be installed, otherwise it may cause creepage (leakage).
3. Do not touch wire connectors when the power is on, otherwise you may get an electric shock.
4. Do not dismantle or modify the product. If you have to do so, please contact with us first. Otherwise it may cause electric shock and fire.
5. Please check the connection number while you connect the power supply wire or input signal, otherwise it may cause fire.

⚠ Caution

1. This product cannot be used outdoors. Otherwise the working life of the product will become shorter, or an electric shock accident may happen.
2. When you connect wire to the power input connectors or signal input connectors, the moment of the No.20 AWG (0.50 mm2) screw tweaked to the connector is 0.74n.m - 0.9n.m. Otherwise the connectors may be damaged or get fire.
3. Please comply with the rated specification. Otherwise it may cause electric shock or fire, and damage the product.
4. Do not use water or oil base cleaner to clean the product. Otherwise it may cause electric shock or fire and damage the product.
5. This product should be avoid working under the circumstance that is flammable, explosive, moist, under sunshine, heat radiation and vibration. Otherwise it may cause explosion.
6. In this unit it must not have dust or deposit, otherwise it may cause fire or mechanical malfunction.
7. Do not use gasoline, chemical solvent to clean the cover of the product because such solvent can damage it. Please use some soft cloth with water or alcohol to clean the plastic cover.

1. Model Illustration

TE □-□ □ □ □ W

- TE Advanced Type
- Input: 10: Single Input
- Alarm: B: One Alarm
- Output Function: R: Relay Output S: SSR Output
- Dimension：4:48W×48H 6:48W×96H 7:72W×72H 8：96W×48H 9:96W×96H 16:80W×160H 80:160W×80H
- TE Series Temperature Controller

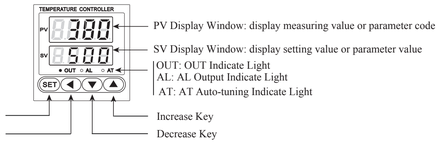
2. Ordering Model

Model	Control Output Function	Alarm
TE□-RB10W	Relay Output	One
TE□-SB10W	SSR Output	One

3. Main Technical Specification

Resolution	TC：1℃ RTD：0.1℃.
Output Function and Capacity	Relay Output: Capacity 3A/250VAC
	SSR Output: (TE6/7/8/9/80/16: 12V Voltage, Load 30mA), (TE4: 24V Voltage Load 30mA)
Power Supply	TE4：AC/DC 100–240V TE7: AC 220V±10% TE6/8/9/16/80：AC 220V±10%
Total Current	＜30mA（AC 220V）
Working Condition	0～50℃ 45～85%RH

4. Panel Illustration



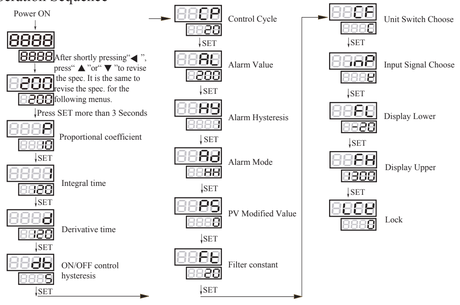
5. Panel Key Operation

(1). SET Key: After powed on,long-time press SET to enter into setting meun,under the status of setting meun,long-time press SET to exit,shortly press SET to enter into the next menu.

(2). “◀”Key: Under any menus,shortly press“◀ ”, the value to revise will flash, then press “▼”or “▲”to revise the spec.value.Under normal display status,long-time press “◀”to enter into Auto-tuning status,under the Auto-tuning status,long-time press“ ◀ ”to exit.

(3). “▲▼ ”Key:After shortly pressing“◀ ” ,press“ ▲ ”or“ ▼ ”to revise the spec.value,long-time press“ ▲ ”or“ ▼ ”to fast increase or decrease the spec.value After revising finished, press SET to confirm.

6. Operation Sequence



7. Setting Menu

Parameter	Indication	Setting range	Ex-factory setting
P	Proportional coefficient, the system will be heated faster when the P value is lower and more slowly if the value is higher. Increasing the P value can reduce the shock, but will increase the control deviation, decreasing it will decrease the control deviation, but will cause shock (P=0: stepping control)	0～999	10
I	Integral time: when the I value is lower, the integral action is stronger and easier to eliminate the deviation with the set value, if the integral time is too long , maybe can’t eliminate the deviation.	0～3600S	120
d	Derivative time: decreasing the derivative action to a proper value can prevent the system shock, the derivative action is stronger when the “d” value is higher	0～3600S	120
db	Stepping control hysteresis (Only stepping control workable)	0～8000	5
PC	Control cycle , 1 means SSR control output, 4–255 means Relay control output	1～256	20
AL	Alarm Value	FL～FH	200
HY	Alarm Hysteresis	0～8000	1
Ad	Alarm Mode: HI.: Absolute value lower, HH: Absolute value upper, DL: Lower deviation, DH: Upper deviation	HI.、HH、DI.、DH	HH
PS	PV modify value which be used to modify the error that caused in the measuring	-1500～1500	0
Fi	Filter constant: when the coffficient is smaller, the respond is more quick, but it may cause fluctuation	1～256	20
CF	Display Unit Switch C：℃ F：°F	C～F	C
inP	Input signal: K, J, E, T, PT100, CU50, CU100	Refer to input signal table	K
FL	Display value lower limit	Refer to input signal table	-20
FH	Display value upper limit	Refer to input signal table	1300
LCd	Lock menu , If unit’s place is “1”, the SV value is forbidden to change, if ten’s place is “1”, other parameters of the menu can not be modified	0～9999	0

Input Signal Table

Input Code	Input Type	Measuring Range	Resolution	Accuracy	Input Resistance
K	K Type	-20～1300℃	1℃	0.5%F.S	＞100KΩ
J	J Type	-20～1000℃	1℃	0.5%F.S	＞100KΩ
E	E Type	-20～600℃	1℃	0.5%F.S	＞100KΩ
t	T Type	-20～400℃	1℃	0.5%F.S	＞100KΩ
S	S Type	-20～1700℃	1℃	0.5%F.S	＞100KΩ
Pt100	PT100	-199.9～610.0℃	0.1℃	0.5%F.S	（0.2mA）
Cu50	CU50	-50.0～150.0℃	0.1℃	0.5%F.S	（0.2mA）
Cu100	CU100	-50.0～150.0℃	0.1℃	0.5%F.S	（0.2mA）

Alarm Function Table

Alarm Code	Alarm Type	Alarm Output (AL1 and AL2 are mutually independent)	Formula
HH	Absolute value upper	HY, AL, temperature rise	Alarm：PV＞AL Cancel：PV≤AL-HY
HL	Absolute value lower	HY, temperature drop, AL	Alarm：PV＜AL Cancel：PV≥AL+HY
dH	Upper deviation	HY, SV, SV+AL, temperature rise	Alarm：PV＞AL+SV Cancel：PV≤SV+AL-HY
dL	Lower deviation	HY, temperature drop, SV-AL, SV	Alarm：PV＜SV-AL Cancel：PV≥SV-AL+HY

8. Advanced Function

P.I.D parameter setting and Auto-tuning operation

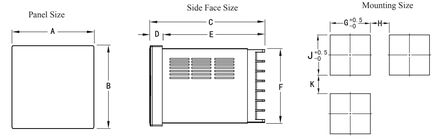
1. Setting P.I.D parameter manually:

There has been a P.I.D parameter, which can suit for uaual heating system, be setted before Ex-factory.
For those people who have certain experience on P.I.D control and though the normal P.I.D setting can not meet their needs, they can set the P.I.D value according to their own needs and experience manually.

2. Setting P.I.D parameter automatically:

If the user do not know how to setting P.I.D parameter, they can use the auto-tuning function of the meter.
Auto-tuning Method: Firstly: Setting a SV value, press ◀ Key for more than 3 seconds; Do not move your hand until “AT” indicate light ON, it shows that the auto-tuning is on process.
In order to make sure the accuracy of auto-tuning, SV value and the parameter of the device do not allow to ba changed, after the “AT” indicate light OFF, original P.I.D value will be changed, then the meter can measure the temperature automatically and accurately.

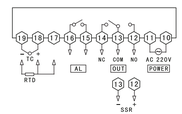
9. Outline and Mounting Dimension



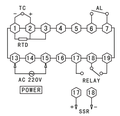
Model	A	B	C	D	E	F	G	H(Min)	J	K(Min)
4:(48*48)	48	48	97.5	6.5	91.5	45	45.5	25	45.5	25
6:(96*48)	48	96	97.5	9.0	88.5	89.5	45	25	92	25
7:(72*72)	72	72	97.5	9.0	88.5	67	67.5	25	67.5	25
8:(48*96)	96	48	97.5	9.0	88.5	44.5	92	25	45	25
9:(96*96)	96	96	97.5	9.0	88.5	91.5	92	25	92	25
16:(160*80)	80	160	96	13	83	155	76	30	155.5	30
80:(80*160)	160	80	96	13	83	75.5	155.5	30	76	30

10. Connection Drawing

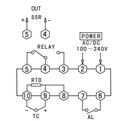
TE9W Power:AC 220V±10% Voltage Output:DC 12V 30mA Relay Output:AC 250V 3A



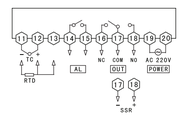
TE7W Power:AC 220V±10% Voltage Output:DC 12V 30mA Relay Output:AC 250V 3A



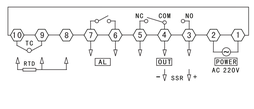
TE4W Power:AC/DC 100-240V Voltage Output:DC 24V 30mA Relay Output:AC 250V 3A



TE6/8W Power:AC 220V±10% Voltage Output:DC 12V 30mA Relay Output:AC 250V 3A



TE16/80W Power:AC 220V±10% Voltage Output:DC 12V 30mA Relay Output:AC 250V 3A



Note: If there is any change, please subject to the drawing on the meter!

11. Simple Problem Shooting

Display	Shooting Method
Display HHHH or LLLL	Checking whether the input is unconnected Checking FH value and FL value Checking the ambient temperature Checking whether the input signal is correct